

HISTORY OF MYCOLOGICAL EXPLORATIONS IN NEPAL

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ABSTRACT - The present article provides a brief review on history of mycological explorations carried on by the investigators till now in Nepal. The collection and systematic study recorded so far dates back to the period of J.D. Hooker (1848-50) from which M.J. Berkeley (1854) described 44 species of higher fungi. Since then taxonomic and biogeographic studies on Nepalese mycoflora have been done mainly in the central region. Eastern and western zones have not been intensively explored so far except few. Several new and endemic species are described from alpine and subalpine zones. The fungi parasitic on cereal crops and plants of economic importance have been studied much in comparison to medicinal plants. The medicinal, industrial and mycorrhizal fungi are still poorly known from the country. The literature survey till now records about 428 genera and 1200 species. The himalayan belts still need intense mycological survey.

RÉSUMÉ - Cet article retrace un bref résumé de l'histoire de l'exploration mycologique réalisée au Népal jusqu'à aujourd'hui. Les collectes et les études systématiques recensées remontent jusqu'à l'époque de J.D. Hooker (1848-50) à partir desquelles M.J. Berkeley (1854) décrivit 44 espèces de champignons supérieurs. Depuis, les études taxonomiques et biogéographiques sur la mycoflore népalaise ont surtout été réalisées dans la région centrale. Les zones orientales et occidentales n'ont pas été explorées ou très peu. De nombreuses espèces endémiques nouvelles ont été décrites en provenance des zones alpine et subalpine. Les champignons parasites sur les céréales et les plantes économiquement importantes ont été beaucoup plus étudiés que ceux des plantes médicinales. Les champignons médicinaux, industriels ou mycorrhiziens sont encore très mal connus dans le pays. La compilation bibliographique a permis de recenser environ 428 genres et 1200 espèces. Les étages himalayens nécessitent encore d'intenses collectes mycologiques.

KEY WORDS : Mycology, Himalaya, botanical history.

INTRODUCTION

Nepal, the land of the Himalaya, with an area of 147181 sq km, lies in between 26°22' N latitude and 80°40' - 88°12' E longitude. The average length

is 800km from the river Mechi (East) to Mahakali (West) and 140km wide from North to South. The topography is too much rugged in nature due to varying altitude between 350m (flat land to the south) and 8648m (Himalayan belt in the north). The climate is warm humid in summer and cool dry in winter. These complex geomorphology, altitude and climate have flourished the country with diverse interesting floras from north to south and east to west. The main climatic belts and forest types are described in table I.

Table I

Climatic belts	Altitude (m)	Dominant forest types
Tropical	Up to 1000	<i>Shorea robusta</i>
Subtropical	From 1000 to 2000	<i>Schima - Castanopsis</i> in East <i>Pinus roxburghii</i> on West
Temperate	From 2000 to 3000	<i>Quercus - Rhododendron</i> in East <i>Cedrus - Abies</i> on West
Subalpine	From 3000 to 4000	Lower belt of <i>Tsuga - Abies</i> and upper belt of <i>Betula - Rhododendron</i>
Alpine	From 4000 to 5000	Lower belt of scrub of <i>Rhododendron - Juniperus</i> and upper steeppe belt
Nival	Above 5000	

The phytogeographic elements in turn have made the country a treasure house for the luxuriant growth of tremendous amount of fungi. The publications are scattered in different journals in different languages. Singh & Joshi (1977) for the first time published the list as "Bibliography on fungi of Nepal". Since then there has been a great accumulation of references worth compilation. Therefore, this work was undertaken as a preliminary attempt to record the history of mycological explorations carried in Nepal by different mycologists in time to time. For convenience the synoptic view of the works or studies have been divided into 4 periods chronologically (Tab. 2).

Table 2

S.N.	Year	Authors
1	Mid of the 19th century	Berkeley (1854)
2	Between 1901 and 1916	Sydow & Butler (1912, 1916)
3	1917 - 1950	Cummins (1943)
4	1950 - till now	All other ref. since Mundkur & Thirumalachar (1952)

Before reviewing the publications or papers it is better here to provide a glimpse on the concerned literatures for taxonomic and biogeographic studies on specific taxa done by different authors. The taxa treated here are adopted after Hawksworth, Sutton & Ainsworth (1983) "Dictionary of fungi". The list of references according to the main taxonomic groups of Nepalese mycoflora is given as below.

Taxonomic groups	References
MYXOMYCOTA	
Ceratiomyxomycetes	46 - 78 - 110
Dictyosteliomycetes	45 - 46 - 47
Acrasiomycetes	46
Myxomycetes	14 - 19 - 46 - 77 - 78 - 84 - 104 - 105 - 110
EUMYCOTA	
<i>Mastigomycotina</i>	
Chytridiomycetes	19 - 57 - 60 - 61 - 89 - 102 - 115
Oomycetes	13 - 19 - 20 - 22 - 52 - 53 - 54 - 58 - 63 - 98 - 102 - 111 - 124
<i>Zygomycotina</i>	
Zygomycetes	19 - 64 - 87 - 95 - 96
<i>Ascomycotina</i>	
	5 - 12 - 13 - 14 - 16 - 19 - 25 - 44 - 49 - 50 - 54 - 57 - 58 - 63 - 64 - 65 - 70 - 71 - 72 - 79 - 80 - 81 - 83 - 90 - 91 - 92 - 97 - 102 - 103 - 111 - 113 - 120 - 121 - 123 - 127 - 128 - 129
<i>Basidiomycotina</i>	
Hymenomycetes	1 - 2 - 4 - 8 - 10 - 12 - 13 - 14(a,b) - 15 - 16 - 19 - 48 - 50 - 65 - 83 - 85 - 86 - 100 - 102 - 109 - 111 - 112 - 113 - 116
Gasteromycetes	1 - 12 - 13 - 14(b) - 15 - 19 - 50 - 59 - 62 - 83 - 112
Urediniomycetes	3 - 5 - 6 - 9 - 11 - 12 - 13 - 19 - 21 - 26 - 27 - 28 - 34 - 35 - 36 - 37 - 38 - 39 - 40 - 41 - 43 - 51 - 54 - 55 - 57 - 58 - 63 - 64 - 65 - 67 - 73 - 74 - 82 - 102 - 103 - 116 - 125

Ustilaginomycetes	3 - 11 - 12 - 13 - 14(c) - 19 - 57 - 58 - 64 - 65 - 66 - 76 - 95 - 102 - 108
<i>Deuteromycotina</i>	
Coelomycetes	56
Hypomycetes	3 - 7 - 9 - 13 - 14(c) - 19 - 29 - 30 - 31 - 32 - 33 - 51 - 54 - 57 - 58 - 59 - 63 - 64 - 65 - 66 - 68 - 69 - 75 - 88 - 93 - 94 - 95 - 96 - 98 - 99 - 101 - 106 - 107 - 111 - 117 - 122 - 126

This taxonomic grouping of references is provided here, with a view to avoid the repetition of citation while discussing the papers in specific taxonomic pattern. So the works or studies are discussed chronologically.

1. Period between 1854 and 1950 (first to third)

The mycological foray in Nepal started since the period of J.D. Hooker (1848-54), the third botanist, who explored east Nepal in a botanical study. His specimens were studied and described by M.J. Berkeley in Hooker's Journal.

Berkeley (1854), the eminent mycologist, in his "indian fungi" reported 44 species of Nepalese fungi. In those papers he described 20 new species viz. *Lentinus nepalensis*, *L. inquinans*, *Lycoperdon elongatum*, *L. emodense*, *Polyporus cerues*, *P. elatinus*, *P. flavidus*, *P. florideus*, *P. nepalensis*, *P. pictilis*, *Irpex zonatus*, *Polyporus vivax*, *Radulum spongiosum*, *Scleroderma nitidum*, *Sphaeria nepalensis*, *Stereum endocrocinum*, *Trametes tephroleuca*, *T. versatilis*, *Ustilago ocrearum* and *Xylaria fistuca* from subtropical and subalpine zones of the country.

Since 1854 to 1911 and 1917 to 1948 there was a long gap in mycological investigation. Butler & Bisby (1960) and Bilgrami et al. (1979) depict of three Himalayan rusts and *Exobasidium* sp. described by Sydow & Butler (1912, 1916) and Cummins (1943). The route maps followed by different investigators are also provided here with (Fig. 1).

2. Period since 1952

Mundkur & Thirumalachar (1952) included 4 species of smuts in the "Ustilaginales of India" from a critical study of deposited herbariums collected by Hooker and Kurkill from east Nepal. Balfour-Browne (1955), the eminent mycologist of British Natural History Museum, in "Some himalayan fungi" enlisted 40 genera and 74 species viz. Ascomycotina (7 genera, 8 species), Hymenomycetes (17 genera, 24 species), Gasteromycetes (5 genera, 7 species), Urediniomycetes (8 genera, 28 species) and Ustilaginomycetes (3 genera, 7 species). This publication came out due to

gathering of specimens by O. Polunin, W.R. Sykes and L.H.J. Williams (1952) from the eastern part of Jumla (Alt. between 1800m and 5400m) in a botanical expedition organised by Natural History Museum. The species studied by E.J.H. Corner were also included in the list. Newly described species are *Aecidium pleurospermae* Balfour-Browne on *Pleurospermum* sp., *Chrysonomyxa taghishae* Balfour-Browne on *Rhododendron* dwarf sp., *Gomphus floccosus* var. *floccosus* Balfour-Browne, and *Pleurotus nepalensis* Corner. *Amylaria*, Corner's new monotypic genus i. e. *A. himalayensis*, was also included in the list.

Balfour-Browne's "Fungi of recent Nepal expedition" (1968) consists of 88 genera and 156 species viz. Oomycetes (3 genera and 3 species), Ascomycotina (20 genera, 24 species), Basidiomycotina (Hymenomycetes, 37 species; Gasteromycetes, 4 species; Urediniomycetes, 30 species; Ustilaginomycetes, 10 species) and Deuteromycotina (4 genera, 4 species). These specimens were collected during the botanical expeditions made by (1) J.D.A. Stainton (1956), (2) A.H. Norkett (1961-1962), (3) O. Polunin (1949), (4) Stainton, Sykes and Williams (1954) and (5) Stainton (1952). The expeditions (1) and (2) were from east while the rest from central sector. In this paper *Clavulina alata* Corner, *Chromocyphella bryophyticola* Balfour-Browne, *Lentaria macrospora* Corner, *Mollisia dhankutaie* Balfour-Browne, *Parratia melanchinensis* Balfour-Browne and *Podosporium himalensis* Balfour-Browne were added new to science. He proposed two new names *Panus polychrous* (Lev.) Singer: Balfour-Browne (= *Lentinus polychrous*) and *Mastigoneuron americanum* (Mont.) Balfour-Browne (= *Pestalotia americana*).

Mishra (1963, 1965) incidently came across the natural occurrence of pycnial and aecial stages of *Puccinia sorghi* (the maize rust) on *Oxalis corniculata* at Sikha (Pokhara-Muktinath, central Nepal). In 1965 in a survey of central Nepal (Butwal-Muktinath) he found the occurrence of the pycnial and aecial stages of 3 different graminicolous rusts on various species of *Berberis*.

Kobayashi (1965) reported the occurrence of *Calostoma* sp. in east Nepal. Imazeki et al. (1966) reported 3 genera and 3 species (1 Ascomycotina, 2 Basidiomycotina) collected in botanical expedition organised by National Science Museum, Tokyo, Japan.

Bhatt (1965, 1966) in his preliminary list enumerated 118 species of fungi (Myxomycota 1, Mastigomycotina and Zygomycotina 8, Ascomycotina 27, Basidiomycotina 33, Deuteromycotina 51). Bhatt & Manandhar (1971, 1972, 1975) reported few species of aquatic moulds and rust fungi from Kathmandu valley.

Singh (1966) reported 18 wild species of mushrooms sold at Kathmandu market in a bamboo package. In 1968 (a, b) he listed 43 genera and 89 species (14 Mastigomycotina, 13 Ascomycotina, 32 Basidiomycotina and 30 Deuteromycotina) of parasitic fungi affecting 108 wild and cultivated

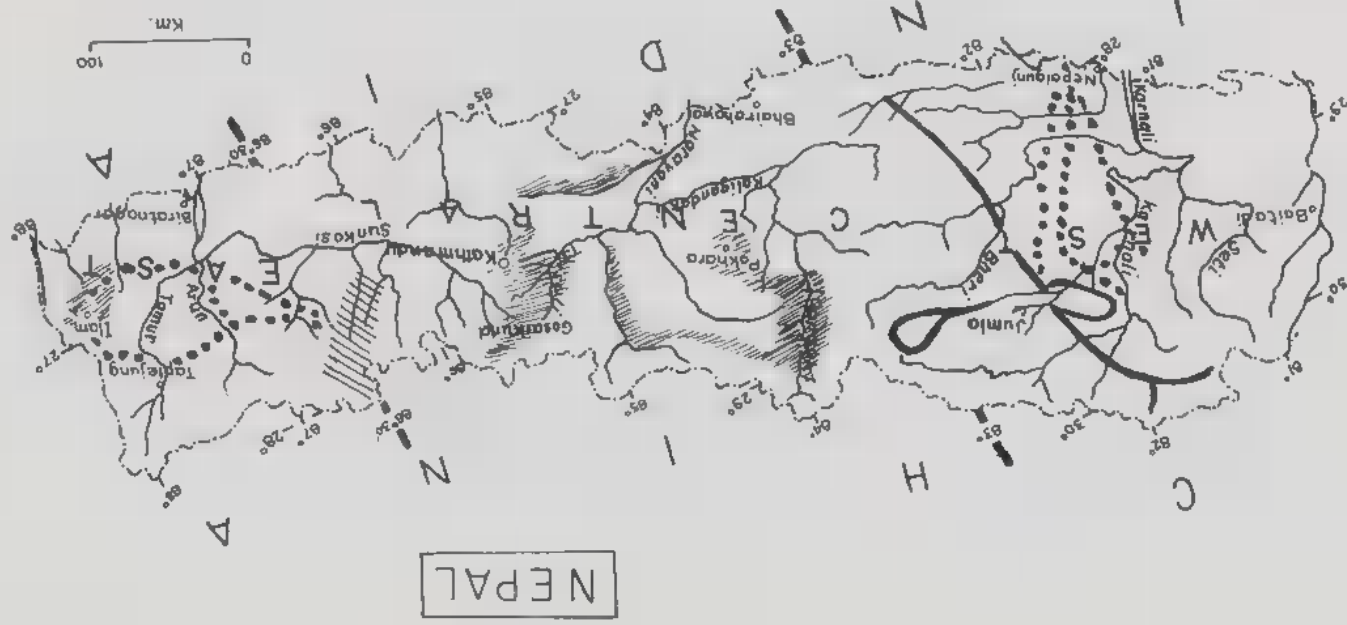


Fig. 1 - Maps showing the areas of major mycological explorations and phylogeographical regions.

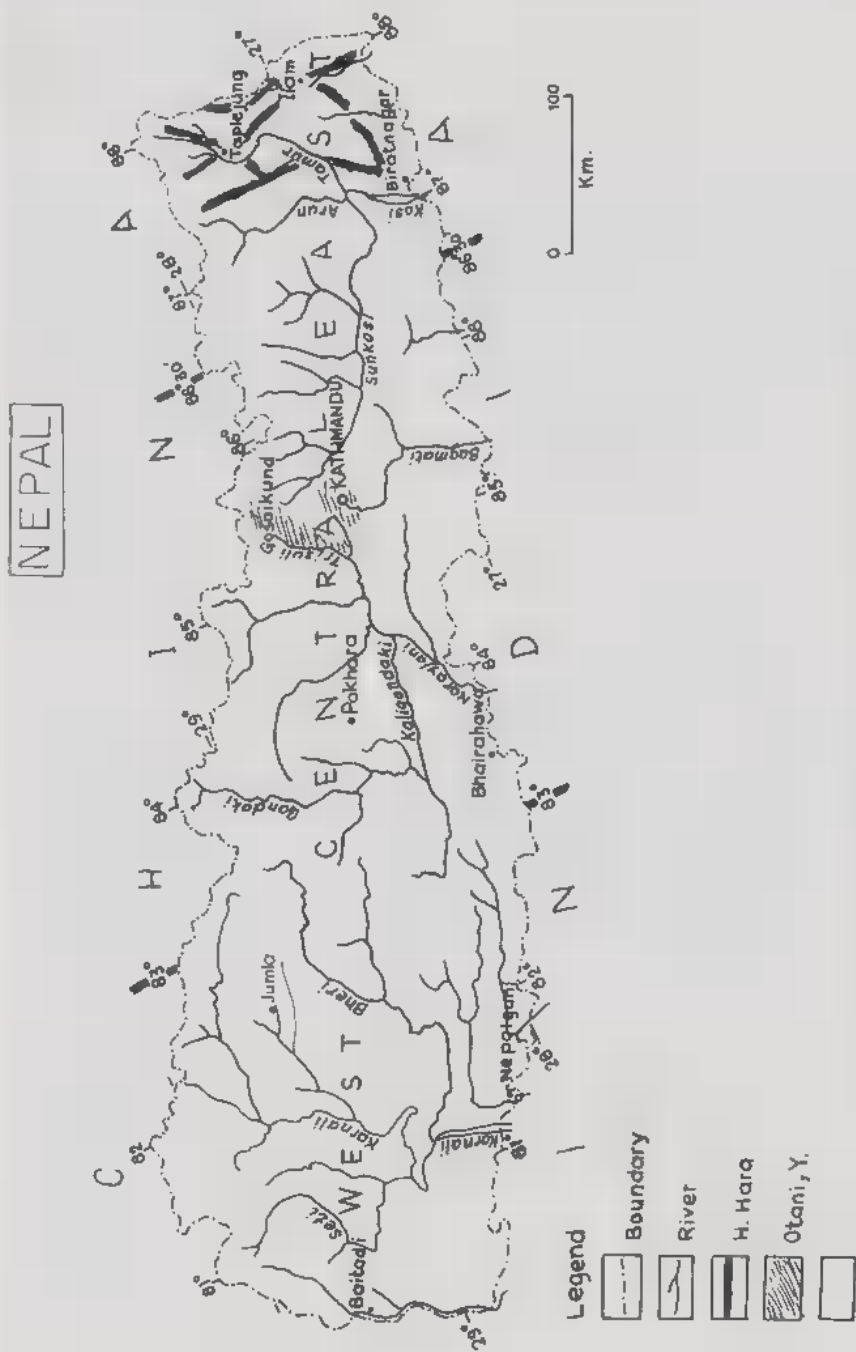


Fig. 1 - Cartes figurant les explorations mycologiques principales et les régions phytogéographiques.

plants and 10 aquatic moulds from Kathmandu valley. Singh & Nisha (1973 a, b, c) collected 7 species of *Cercospora* (on 7 hosts) and 1 species of smuts (on 2 hosts) from Dhulikhel and Kathmandu valley. In 1974 they reported one species of *Exobasidium* from Dhulikhel. In 1976 (a, b, c) they enlisted 79 genera and 122 species (14 Myxomycota, 1 Oomycete, 5 Ascomycotina, 80 Basidiomycotina and 22 Deuteromycotina) of fungi. Singh & Adhikari (1977) described 4 genera and 5 species of fleshy fungi collected from Manichur, Kathmandu valley. Singh et al. (1977) isolated 3 species of *Blastocladiu* using tomato fruit balt. Singh & Upadhyaya (1978) described 5 interesting fungi from Suryavinayak (Kathmandu valley), Jomson and Tukuhe (central Nepal).

Khada & Shah (1967) in "Preliminary list of plant diseases" listed 154 species of parasitic fungi on 79 hosts (cultivated) including 1 species of Algae from different parts of the country (east and central). In 1968 they along with Lawat listed 210 fungi parasitic on 97 hosts, in the supplementary list, from east and central zones.

Deighton (1967-1976) studied and described 6 species of imperfect fungi sent to CMI for identification.

Goto & Sugiyama (1968), on studies of himalayan yeasts and moulds, reported 4 species which encluted *Debaryomyces nepalensis* described as new to science.

Kreisel (1969) listed 9 genera and 15 species of Gasteromycetes collected by J. Poelt from Khumbu Himal and adjoining areas between the altitude of 2450m and 5400m. In it he described *Bovistella poeltii*, *Lycoperdon niveum* and *L. yetisodule* new to science. Poelt (1969) in an expedition to Khumbu Himal and its adjoining area collected 55 species of Myxomycetes which was published in "Khumbu Himal". The 2 species, viz. *Arcyria nepalensi* and *Lamproderma nigrisplendidum*, were newly introduced to science in his report.

Sutton (1970) reported 2 Hyphomycetes among which *Pseudobeltrania chumrungensis* was newly described.

Sharma (1971) isolated 2 aquatic moulds from Kathmandu valley. Pandey (1971) in a paper of ecological ramblings in tarai forests of Nepal included 3 rusts. Pandey (1976) published a list of 314 specimens of Basidiomycotina collected from hilly forests of different regions (Kathmandu valley, Daman, Hetauda, Rampur, Janakpur (central Nepal); Dingla and Khand bari (east Nepal)). In this paper most of the specimens were identified upto generic level without any descriptions. But yet this report provides a major conception of distribution and growing regions for mushrooms hunters.

Onsberg (1973) recorded 2 species of Myxomycetes in which *Lycogola fuscoviolaceum* was added new to science. In 1974, Horie & Udagawa

described 5 taxa isolated from himalayan soil among which 4 species, viz. *Anixiella micropertusa*, *A. saitoi*, *A. sphaerospora* and *Gelasinospora himalayensis*, were introduced as new to science.

The most significant contribution to the mycoflora of Nepal is that of G. Durrieu (1975-1987), the French mycologist, who explored the central region (except few eastern parts) from tropical to alpine belts of this himalayan country. He intensively collected, studied and described the rust fungi only. In 1975 (a), he described 2 new species *Hamasporea dobremezii* and *H. nepalensis* parasitic on *Rubus fockeanus* and *R. biflorus* respectively. In another paper of the same year he gave an account on the biogeography of phytopathogenic fungi in relation to phytogeographic zonation. In that paper he remarkably tabulated the concentration of large number of fungi in subtropical and temperate belts in comparison to tropical and subalpine zones. In 1977 (a) he added *Coleosporium himalayense* parasitic on *Pinus wallichiana* as new to science. In "Les rouilles des *Rubus* au Népal" (1977 b) he described 9 species of rusts along with their keys for identification including biogeography. Among them 2 species new to science *Hamasporea vietnottii* on *Rubus acuminatus* and *Phragmidium quinqueloculare* var. *triseptatum* on *Rubus biflorus* and *R. foliolosus* were also added. In 1979, *Melampsora ribis* on *Ribes takara*, *Puccinia annapurnae* on *Polygonum polystachyum*, *Puccinia commelinae* on *Commelina benghalensis*, *Puccinia mullae* on *Clematis barbellata*, *Puccinia manangensis* on *Clematis orientalis*, *Puccinia pilearum* on *Pilea umbrosa* and *Puccinia heraclei-nepalensis* on *Heracleum nepalense* were described by him as new to science. In "Uredinales du Nepal" (1980) he enumerated 150 species out of which *Hapalophragmium nepalense* on *Derris cuneifolia*, *Phragmidium cinnamomeum* on *Rosa sericca* and *R. macrophylla*, *Ravenelia microcephala* on *Acacia concinna* and *Ravenelia pennatae* on *Acacia pennata* were newly described. A new name *Puccinia emodensis* (= *P. nitida*) was also proposed in it. In the same article he also noted the distribution of these elements with Indian subcontinent, Yunan, China, Sinojapanese, south east Asiatic and European countries. In 1987 he reported 30 species with 4 new taxa (*Puccinia mercei* on *Satyrrium nepalense*, *Uromyces dobremezii* on *Euphorbia stracheyi*, *Uromyces langtangensis* on *Anaphalis nepalensis* and *Uromyces obesus* on *Heteroropogon contortus*) collected from Langtang valley and Lamjung himal by him and J. Merce.

Gjaerum et al. (1975) reported the occurrence of powdery scab fungus from east Nepal. Gjaerum & Steineger (1978) collected and studied 10 species of rusts from Rolwaling (central Nepal) at varying altitude of 1500m to 3850m.

Manandhar & Shah (1975) in the second supplementary list of plant disease enumerated about 200 fungi parasitic on 143 species of wild and cultivated hosts without their critical information (date and locality) and with the repetition of few species reported earlier. Algae was also included in the list. Manandhar (1977a) alone added 7 genera and 27 species of rusts

from Ilam, Birgunj, Kathmandu, Pokhara and Nepalgunj. She (1977b) again added 50 species of *Cercospora* from different parts of Nepal.

Minoura et al. (1975 a,b, 1977) isolated 20 genera and 29 species of Ascomycotina from the soil samples collected from different regions of Nepal and only one species (*Coniochaeta nepalica*) was introduced to science.

Adhikari (1976) listed about 30 wild edible species of mushrooms collected daily as food during in season by local herds at Manichur (Kathmandu valley). In 1984 he reported a parasitized agaric. He also threw light on different ethnic groups associated with mushrooms collection and consumption in different phytogeographic regions of Nepal (1987). His paper "Polypores of Nepal" (1988) consists of check list along with his own additions to list. Adhikari & Manandhar (1983-1988) reported 19 species (12 rusts, 2 smuts, 1 Ascomycete, 3 Fungi Imperfecti) of fungi parasitic on 15 hosts belonging to the family Rosaceae, Polygonaceae and Gramineae. In 1986, they described a new *Passalora* species as new to Science. Adhikari & Yami (1984) recorded 3 fungi (2 rusts, 1 Imperfect fungi) on the medicinal plants *Cymbopogon* from Kathmandu valley.

Joshi (1976 a, b) reported 6 species of Oomycetes from Kathmandu valley. In 1977 he again added 9 genera and 21 species of fungi (1 Oomycete, 4 Basidiomycotina, 1 Ascomycotina, 15 Deuteromycotina). Lama (1976, 1977) collected and reported the occurrence of 66 species of fungi (6 Oomycetes, 12 Ascomycotina, 8 Basidiomycotina, 40 Deuteromycotina) affecting wild and cultivated plants around the Pokhara valley (central Nepal).

Ranjitkar & Bhatt (1976) described one *Craterellus* species collected from Sundarjal (Kathmandu valley). Shrestha K. (1976-1984) isolated 73 species of imperfect fungi from different local seeds. Morinaga et al. (1977) isolated 15 species of Hyphomycetes from soil samples collected at different parts of Nepal. Nisha et al. (1977) reported 5 species of Myxomycetes from Kathmandu valley.

Ryvarden (1977) registered 50 species of wood inhabiting Aphyllophoraceous fungi from the collections of J. Poelt. This collection from Khumbu region was concentrated between the altitude 1800m and 3900m. In this report *Phellinus poeltii*, a newly described species, was introduced. In concluding remark he noted 2 tropical and subtropical and 9 temperate species with their affinities with Japan, Fennoscandia, Siberia and America.

Waraitch & Thind (1977 a, b, c) reported 29 genera and 37 species of Ascomycotina from central Nepal and proposed two new combinations. Manandhar & Bhatt (1979) isolated 7 taxa of pathogenic fungi from the seeds of *Eleusine coracana*.

Bandhary (1980) collected 13 species of fungi (1 Ascomycotina, 12 Basidiomycotina) from Pokhara valley. In 1984 he prepared a check list of mushrooms (edible and poisonous) along with their local names. He also studied the market samples and found 25 species being sold as adible ones (1985).

Vaidya & Manandhar (1981) isolated 17 taxa of fungi from a varying depth of cultivated land soil of Kirtipur (Kathmandu valley).

In 1982 the result of "Microbiological expedition to Nepal" on Nepalese mycoflora investigation organised by National Science Museum, Tokyo was published as "Reports on the Cryptogamic study in Nepal". The study was done in joint venture with Nepalese mycologist in the year 1979-1980. In this report Hagiwara & Bandhary listed 17 genera and 35 species of Myxomycota collected from central region (Langtang valley). Hagiwara alone enumerated 12 species of Dictyostelid cellular slime moulds from Gosainkunda area with reference to their altitudinal distribution influenced by various phytogeographical factors. Hagiwara (1983) described 4 new species of these slime moulds (*D. exiguum*, *D. gracile*, *D. longosporum* and *D. magnum*) collected from the same area, as new to science. Otani (1982a) described 27 species of cup fungi including two new species, viz. *Spathularia bifurcata* and *Leotia himalensis*. Otani & Bhandary (1982) described *Taphrina nepalensis*, new to science, parasitic on *Pteris quadriaurita*. Konno (1982) isolated 11 species of Chytrids from the soil samples collected by Y. Kobayashi, M. Watanabe and H. Hagiwara. In 1986 she again enumerated 8 species of Chytrids isolated from the same soil samples. Udagawa & Horie (1982) described *Apiosordaria vestita* and *Coniochaeta emodensis* as new to science (Ascomycotina) isolated from soil samples. Udagawa & Sugiyama (1982) published 64 species of Ascomycotina isolated from soil, dung, herbal drugs and spices collected at various places in Nepal. In it they described several new species, viz. *Achaetomium nepalense*, *A. purpurascens*, *Cercophora himalayensis*, *Coniochaeta perangusta*, *Isia anixielloides*, *Sporormia nepalensis*, *Thielavia emodensis* and *T. expansa*.

Takada & Udagawa (1983) described 2 new species of *Eupenicillium* isolated from soil samples collected from central and west Nepal, viz. *E. angustiporcutum* and *E. nepalense*.

Sharma (1983 a,b) while studying the type specimens at PAN Herbarium reported 2 species collected from central Nepal among which *Dasyyscyphus thindii* was introduced as new to science. Sharma & Sharma (1983) recorded only one species from Nepal. Thind & Sharma (1983) enumerated 38 species from the critical study of Nepalese Himalayan Helotials collected by Norkett (1961, central zone), J.D.A. Stainton (1962, central zone) and H. Singh (1968, central zone). Katumoto (1984) introduced a new monotypic genus *Cladosporothyium* and the species *C.*

nepalense found on the leaves of *Myrsine semiserrata* collected from Phulchowki (Katmandu valley).

In 1984 Ryvarde's collection (1979) from Pokhara and Annapurna region (central Nepal) was jointly studied with Hjortstam. This collection was concentrated between 1200m and 3800m altitude. They published the occurrence of 60 genera and 95 species in their "Some new and noteworthy Basidiomycetes (Aphylophorales) from Nepal". In this article the new species described were *Grammothelae bambusicola*, *Innotus Hemisetulus*, *Peniophora bicornis*, *Phlebia albo-fibrillosa* and *Phellinus acontextus*. They also proposed new combinations *Daedalea incana* (Lev.) Ryv. (= *Trametes incana*) and *Innotus flavidus* (Berk.) Ryv. (= *Polyporus flavidus*).

Cotter & Bhandary (1985) reported the occurrence of the species *Cavimalium indicum* parasitic *Arundinaria* in Nepal. Shrestha (1985) recorded another species of *Cordyceps* i.e. *C. nutans* from Lato Manang (central Nepal). Cotter & Adhikari (1986) reported the occurrence of the stem rust fungi (*Cronartium himalayense*) on *Pinus roxburghii* collected from Syabru bensi area (central Nepal) during his investigation on mycorrhizal fungi.

CONCLUSION

The intense mycological investigation carried out yet is concentrated in the central region in comparison to east. West zone of Nepal is less explored. Much of the endemic and new species are collected and described from the temperate, subalpine and alpine belts. Thus till now 428 genera and 1200 species have been reported from Nepal (Tab. 3).

Table 3

Taxa	Genera	Species
Myxomycota	18	85
Eumycota		
Mastigomycotina & Zygomycotina	33	69
Ascomycotina	130	260
Basidiomycotina	144	466
Deuteromycotina	103	320
Total	428	1200

Though the table provides meagre knowledge on the occurrence of different types of fungi, yet it is seen that the most of the reports are only related with larger fungi in comparison to other taxa. The mycoflora of Nepal shows close affinities mainly with Sinojapanese and Indian

subcontinent, element and also with European and North American. There is still more need that the country should be explored intensively from north to south and east to west on various aspects.

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